

## THE EFFECTIVENESS OF *FLYTRAP WITH ELECTRIC CURRENT* IN REDUCING THE DENSITY OF FLIES IN THE MARKET

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### Abstract

Vector control needs to be done so that the environment is healthy and free from disease. Flies are one of the vectors for diseases such as diarrhea. Parts of flies that can play a role in disease transmission are legs, wings, body hair, feces and vomit. Flies like habitats with poor sanitation are very attracted to bad smells, piles of wet garbage, vegetables, and scraps of meat, this condition can be described by market conditions. The sweet market in Purwokerto can be a potential place for disease spread. This study aims to determine the effectiveness of fly traps with electric current in reducing fly density in Pasar Manis, West Purwokerto District, Banyumas Regency. This type of research is research and development to develop and test tools and to determine the effectiveness of tools in reducing fly density. Samples were taken non-randomly, namely at TPS, loss of meat and storage of vegetables. The data analysis used was univariate to calculate the effectiveness of using the Flytrap With Electric Current tool and bivariate analysis using the paired T test to determine differences in fly density before and after treatment. The results of the study obtained a sig value (P-value) of 0.004. The sig value shows that the sig value. (P-Value)  $< \alpha$  (0.05), so there is a significant difference between the results of measurements of fly density before and after treatment using Flytrap with Electric Current and the efficiency of the tool in reducing fly density by 42.87%. For further research, it is necessary to add attractants with strong odors so that they can attract flies into the trap.

**Keywords:** *fly ; flytrap ; density ; market*

### 1. Introduction

Health effort is any activity and or series of activities carried out in an integrated, integrated, and sustainable manner to maintain and improve the degree of public health in the form of disease prevention, health improvement, disease treatment, and health restoration by the government and / or the community (UU No 36, 2009). According to HR Blum, there are four factors that influence the degree of health, namely environmental factors, behavioral factors, health service factors and genetic factors. Among the four factors, environmental factors are very influential in improving health status. One of them is fly vector control. According to the Directorate General of PPM and PLP (1991, p.1) flies are essentially insects that are widespread throughout the world (Depkes RI, 2001). The body parts of flies that can act as a means of transmitting disease are legs, wings, body hair, feces and vomit (Subagyo et al., 2018).

Flies have a poorly sanitized habitat and are very attracted to bad smells, wet garbage piles, vegetables

and scraps of meat. This condition can be described by market conditions.

The market is one of the public places where the buying and selling process occurs between sellers and buyers, so that the market becomes one of the potential places in the spread of all diseases. Traditional markets in Indonesia are often uncomfortable to visit because they are synonymous with dirty, smelly, muddy, and stuffy places. In addition, it is also a breeding ground for disease-transmitting animals (Hariyanti H. Patamani, 2014). Based on previous research by Satrio Juang Prasasi, Ulya Rahmawati, and Deri Kermelita in 2017 regarding the analysis of the density level of flies (genus *Sarcophaga*) in meat booths at Panorama Traditional Market, Bengkulu City, the results showed that the highest distribution of flies was at point 3 as many as 32, and the distribution The total number of measuring points was 301 flies, the highest average fly density level was at point 3, which was 20 heads / block grill, and the average yield of all points at Pasar Panorama Bengkulu City was 12 heads / block grill (Satrio Juang Prasasi; Ulya Rahmawati;

Deri Kermelita, 2007). If it is reviewed based on the Director General of PPM and PLP, the density of flies as many as 12 heads / block grill is included in the dense population category so it is necessary to secure the breeding places for flies and if possible plan control measures (Depkes RI, 2001).

Manis Market is a traditional market located in Banyumas Regency. This market is crowded with buyers every day. The number of sellers in the market are stalls selling various kinds of merchandise such as vegetables, meat, fish, spices, traditional snacks, clothes, and others. The large number of sellers results in a lot of trash, which has the potential to attract flies. The flies that arrive also vary, such as house flies (*Musca domestica*), fruit flies (*Drosophilidae*), meat flies (*Sarcophaga*), and others. The flies that arrive on average are more likely to land on meat or fish sellers, because their strong aroma attracts the flies to come and perch on meat or fish. Supported by the remaining merchandise that is scattered in the market. Therefore, researchers are interested in conducting research with the title "The Effectiveness of Fly Trap With Electric Current in Reducing Flies Density in Pasar Manis, Baturraden District, Banyumas Regency in 2020"

## 2. Material and Methode

Materials and methods used in this research is Thermohyrometer, Lux meter, Anemometer, Flygrill and Flytrap Electric Current. The method used in this research is Experimental Study using One group design pre post test study. The goal is to develop and test the tool and determine the effectiveness of the tool to reduce the density of flies caused by the treatment. The results will be compared with TLV and several references.

## 3. Result and Discussion

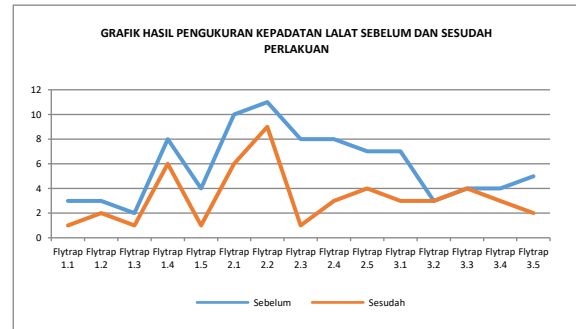
### a. Flytrap with Electric Current



The 220v electric current is lowered with a step down reaching 160v.  $\pm$  cables are installed and assembled with nekelin wire. Electricity will be supplied to the adjoining nekelin wire. If the assembly is exposed to an electric current conducting material, a short circuit will occur. Therefore, if flies / mosquitoes / insects enter, the animal's body parts

will burn. But if the hard material gets into the tool, the wire will be damaged.

Therefore we need a safety wire / ram protector so that it is not harmful to humans. An



electric current is also added to the blue fluorescent lights, which act as an attraction for the flies because flies tend to like bright colors.

### b. Flies Density

Results of the fly density examination before and after treatment using the Flytrap with Electric Current are expected to reduce the density of flies. The treatment was given for 60 minutes at each location and repetition. Fly density was calculated before and after being treated using the Flytrap with Electric Current.

Fly density before and after treatment with Flytrap with Electric Current showed a tendency to decrease the number of fly densities. The greatest fly density is in trials 2.1 - 2.5. This is because TPS is a place for garbage disposal from Sweet Market activities such as rotten vegetables and fruit, and others. What makes TPS become slum and smells bad, where flies like dirty or shabby places and smells bad.

According to the Indonesian Ministry of Health (1991) in Nur Hilal et al. (2013) the density of flies in a location depends on:

- 1) Availability of food
- 2) Availability of places for breeding
- 3) Availability of places to rest
- 4) Physical factors such as temperature, humidity, lighting, and wind speed
- 5) Control efforts at that location

The results of different tests were carried out by using the statistical Paired T Test.

	Sig (2-tailed) or P-Value
$\alpha$ (0,05)	0,004
Conclusion	$P < \alpha$

Keterangan :

$P < \alpha$  : There is a significant difference

$P > \alpha$  : There is no significant difference

### c. Temperature

According to the Director General of PPM and PLP in Agus et al., 2017 fluctuations in the number of flies will increase at a temperature of 21oC - 32oC and will decrease in number at a temperature of 49°C. From the results of the research obtained, the temperature of the vegetable storage was 28oC - 32oC, the TPS obtained a temperature of 28oC - 33oC, and the meat lot obtained a temperature of 28oC - 30oC. This shows flies have a lot of activity because the temperature in the study is included in the optimum temperature for flies.

According to Iif Miftahul et al. (2013) Temperature is one of the factors that influence the presence of flies. Increased temperature in an area can be one of the threats to the development of these insects. Usually an increase in temperature causes an increase in metabolism and results in traits or behaviors such as activity, courage, aggressiveness and exploration of flies. At high temperatures, behavioral traits such as flying and mating will be negatively affected by heat.

### d. Humidity

According to the Director General of PPM and PLP in Agus et al., 2017 For optimum fly activity at 90% humidity, flies will breed optimally. From the results of the research obtained, in the vegetable storage area, humidity is obtained from 64% - 90%, at TPS, humidity is obtained from 72% - 90%, and in los meat, humidity is obtained from 79% - 90% so this shows that the humidity supports the fly activity. . Because flies prefer a more humid environment because it can speed up their life cycle (Wulandari, 2015).

### e. Coruscation

Measurements are made for each measurement. The results of measurements that have been carried out are as shown in table 4.2, each treatment is relatively the same, for the average lighting is 112.46 lux in vegetable storage, 981.58 lux tps and 58.21 lux of meat loss.

Lighting will affect the activity of adult flies both natural and artificial light, different if flies are in a dark place they will be less active. The spread of apabiila flies that are active or resting is influenced by several factors including temperature, humidity, wind, light, color and the condition of the surface on which they live. During the day, the flies will land on a place that has a source of food and a place for breeding. When it is night, the flies will look for a place to rest which is not far from their perch during the day.

From the measurement results at each research location, the average lighting condition is a fairly bright condition so that it is still possible for flies to move and land.

### f. Wind Speed

Speed The wind speed at the research location is carried out for each measurement. The results of the measurements that have been taken at a predetermined location as in Table 4.3 with each treatment are relatively the same. Based on table 4.3, it can be seen that the wind speed at the research location where vegetable storage and meat loss were not detected because in the room the wind was not too strong, consequently it could not be detected using an anemometer, and for the wind speed at the TPS it was detected at a speed of 2.5 - 3, 5 ft / m.

Flies do not like to fly continuously but often perch. The wind speed affects the fly distance. The flight distance of flies is very dependent on the availability of available food, averaging 6-9 km. sometimes reaching 19-20 km from the breeding grounds (Depkes RI, 1992). From the measurement results of wind speed at the research location, the average wind speed is quite supportive of the fly distance.

## 4. Conclusion

The efficiency Flay trap with electric current in reducing fly density that's 42.87%. Statistic Analysis. Statistical test using autism T test obtained value Sig (p-value) by 0,004. And so there is differences before and after treatment Flay Trap With Electric Current. Average wind speed measurement in the polls It's 2.5-2.95 ft/m. The average measurement of temperature and humidity in each place the measurement was obtained 280c-330c and 74.2%. Average measurements Lighting in place vegetable storage amount 17.46 lux, at the 981.58 lux at los meat meat of 58.21 lux.

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